



the astrogram

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National Aeronautics and Space Administration • Ames Research Center, Moffett Field, California

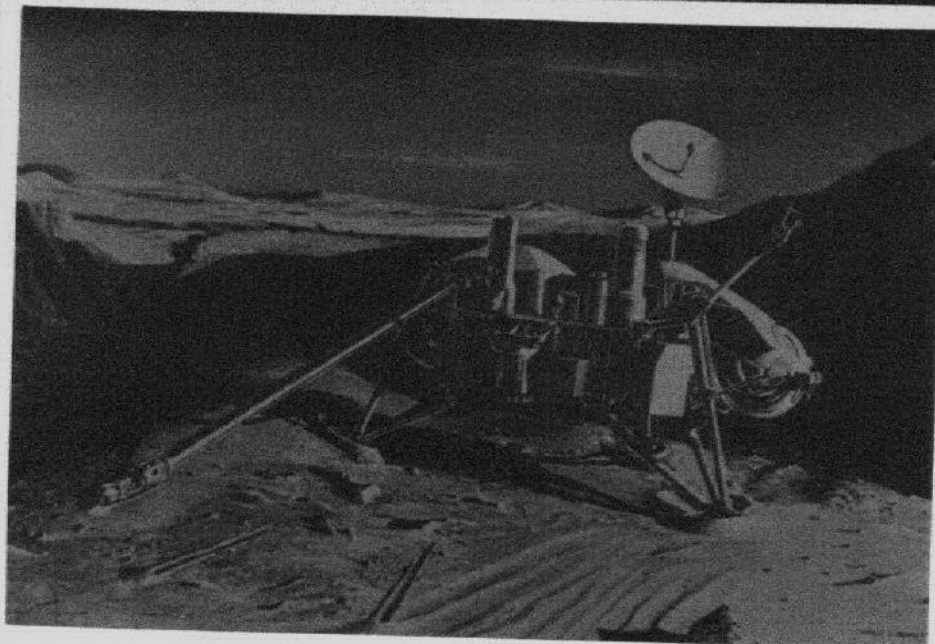
Frolich elected transit chairman

Donald A. Frolich, a mechanical engineer from the Research Equipment Engineering Branch, was recently elected chairman of the Santa Clara Transportation Commission. Frolich lives in Cupertino and is a city councilman and former mayor of that city.

The Transportation Commission chairmanship is a one year term. When asked why he feels he is qualified to serve as chairman of the Commission, Frolich answered, "Because of all the lumps and bruises I've encountered as a member of the City Council!" Frolich served nine years on the Cupertino Planning Commission before he was elected to the council in 1970.

Frolich has been on the Transportation Commission since it was formed one year ago. As chairman he hopes to tighten the 25-member commission and "bring the group together to get it focused on the problems and to move along at a better rate than in the past." He also hopes to complete a \$1.5 million

(Continued on page 3)



Viking Project

ARTIST CONCEPT . . . In 1976, NASA will land two automatic scientific laboratories on the planet Mars. The two spacecraft, each including a lander and an orbiter, will be launched from the Kennedy Space Center within a month of one another in mid-1975. Ames' life science research is essential to the design of robot instruments for life detection to be flown to Mars on the 1975 Viking program.

Ames telelecture facility

"I would just like to conclude that you have been a great audience and have posed excellent questions — most of which pertain directly to my field of research in Astronomy." These words were spoken by Dr. Sanford Kellman of Ames to an audience of 100 teachers who sat in an auditorium more than 1700 miles away from Dr. Kellman's "podium" in a telelecture classroom.

The present telelecture series in which 3 Ames research scientists are participating via an FTS (Federal Telecommunications System) line at Ames is a program coordinated with East Central State College in Ada, Oklahoma. The summer program is a state wide teachers' workshop and is directed by Dr. Kenneth Wiggins. The Oklahoma State Department of Aeronautics provides 100 scholarships for interested elementary and secondary teachers from all disciplines.

Ames was asked to provide 3 speakers in the fields of Astronomy, Biology and Aeronautics. Each speaker is expected to deliver a 50 minute presentation. The Educational Programs Office at Ames asked Dr. Sanford Kellman, an NRC (National Research Council) research associate in Astronomy, Dr. Richard D. Johnson, Assistant Chief of the Planetary Biology Division, and Anthony M. (Tony) Cook, Technical Assistant to the Director of Aeronautics and Flight Systems, to deliver a talk using the telelecture system.

Dr. Kellman spoke on "The Structure and Evolution of Galaxies"; Dr. Johnson chose "Viking Biology" for his topic; and Cook introduced "The Future of Aeronautics."

The speaker experiences a minimum amount of inconvenience and time when delivering a lecture via the telelecture communication facility. He doesn't have to travel any further than the basement of the Administration Building. He may utilize slide by sending a duplicate set to the technician handling the "audience" receiving end.

(Continued on page 2)

Kubokawa tells of research and life in Japan

For nine months the smog-filled capital of Japan served as "home" for Charles C. (Chuck) Kubokawa, of Man-Machine Integration Branch, and his family. Kubokawa, Head of Human Factors Group, accepted a fellowship from the Japanese government to work with Japan's National Aerospace Laboratory, a mini-NASA.

"I worked on the design of the cockpit for the V/STOL (Vertical, Short Take-Off and Landing) aircraft," said Kubokawa in a recent interview. The research scientist concentrated on developing a V/STOL control panel — optimum in design — where man and machine will be totally compatible. The conventional control panel can become extremely confusing to the pilot, especially in an emergency situation. By redesigning the cockpit for V/STOL and leaving only the necessary controls for the pilot to manipulate, the human error factor can be drastically reduced.

Kubokawa found that the Japanese space program is truly in its infancy. The Japanese rockets being launched now are equivalent to some of the earliest small U.S. rockets. The government has one launch site and the universities also have a launch site; the government's is located on a small island at the south of Japan called Tanegashima.

Though the National Aerospace Laboratory is situated on the outskirts of downtown Tokyo the Kubokawa family lived 15 miles away in a western-style home they rented from a U.S. citizen Japan Airlines pilot. Housing is quite difficult to find in Tokyo. Not only is it scarce, it is also expensive.

The smog is extremely dense in Tokyo. "It is far worse than in a city like Los Angeles," recalls Kubokawa. "There are frequent smog alerts and industry is ordered to cut down production 20% but the problem doesn't vanish. I jog every noon at Ames — I didn't dare jog at noon or any other time in Tokyo!"

Many people commute to work by train from the suburbs of Tokyo. Kubokawa tried the commute "bit" for the first two months of his stay. He was living with his uncle at the time and was desperately looking for housing before his family arrived. The commute proved to be somewhat nerve-racking in that people were packed into the trains like sardines. People were always in a hurry and rarely friendly; in fact, they were quite impersonal and extremely reserved.

"But there was one funny thing about commuting," says Kubokawa, "and that was I found for the first time in my life I really felt tall; I could see over the top of everyone's head! It seems like everything in Japan is three quarters the size it is here — from cars to doorways. I've never bumped my head so many times as I did in Japan."

Men constitute the majority of the commute populace in Japan. They also

(Continued on page 2)

Two new EEO counselors appointed

Dorothy Davenport of Computer Operations Branch and Ruben Ramos of Systems Development have recently been appointed EEO (Equal Employment Opportunity) counselors by Dr. Hans Mark, Ames Director.

Ms. Davenport, a computer operator for 12 years at Ames was born in Toledo, Ohio. She worked at the Erie Ordnance Depot (U.S. Army) in Port Clinton, Ohio with EAM (Electrical Accounting Machines) before coming to Ames.

As a new EEO counselor Ms. Davenport is quite enthusiastic. She feels qualified to be a counselor and states, "I am a member of two minority groups. I feel I will be sensitive to and sympathetic with the feelings of employees who believe they are being discriminated against because of Race or Sex."

"In my 22 years of government service I have had personal insights into the problems encountered by minorities. My experiences as a Supervisor have also made me aware of some of the conditions under which management operates. I believe my knowledge and experiences will help me become an objective but conscientious EEO counselor."

Ramos, a research scientist assigned to Project Pioneer, was born in Zacatecas, Mexico and grew up in El Paso, Texas. He graduated from the University of Texas in El Paso with a Bachelor of Science degree in Electrical Engineering and has done graduate work in computer



Why 'waste' money on Space?

Editor's Note: Reprinted from "Electronic Design," 18 September 1972 with permission granted.

Why 'Waste' Money on Space?

With the successful launching of the ERTS (Earth Resources Technology Satellite), the eyes of the public have finally been focused on some of the benefits of the space program to the quality of life here on earth. ERTS will provide data that will help solve problems in agriculture, forestry, geology, land-use management, hydrology, pollution control, oceanography, meteorology and ecology.

While the space program has the public's eye, you can ease the path of NASA's budget through Congress by making your legislators and your neighbors aware of the good that space research does on earth. Here are but a few of the items to mention:

Did you know that NASA paid for the development of the principle of freeze-drying foods? Today you buy freeze-dried coffee and freeze-dried foods to be used when camping. Did you know that the intensive-care units that monitor

heart-attack victims were originally developed to monitor astronauts? Some other recent applications of NASA-developed technology include digital clocks; super-fireproof suits and thermal underwear for firemen; antifogging compounds for helmet visors, windshields and eyeglasses; a caulking compound for bathroom tile; sight switches for paraplegics, so that the blink of an eye can turn a page in a book or call a nurse; the telemetry of EKG readings from a patient or ambulance, and a lightweight torch that can cut through steel plate at the rate of a foot a minute to release people trapped in cars after an accident.

Let's not forget communications satellites for watching Presidents on distant trips or weather satellites to help us plan next weekend's picnic. The same type of navigation system that took the Apollo astronauts to the moon now guides our commercial jets from coast to coast. NASA is even working on nonpolluting automobile engines.

Think twice when someone asks, "What good does it do here on earth to land a man on the moon?" Yes, it's true. Problems here on earth are solved by more technology, not less.

Ames telelecture facility

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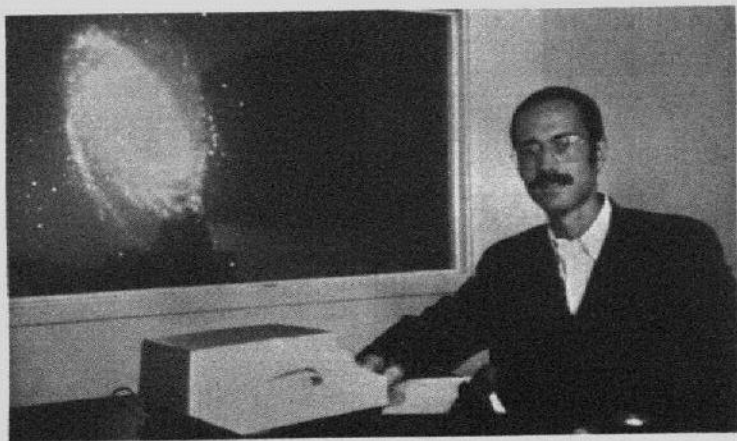
A telelecture is very inexpensive. One lecture will cost less than \$10.

A speaker who develops a good lecturing technique via the telephone can really draw the audience into debate and/or a strong question and answer session. The more frequent a speaker uses the system the more relaxed and effective he is apt to become.

An institution participating in the

telelecturing system must have the appropriate telephone receiving equipment. The equipment is available through the telephone company at a relatively low price.

Other telelecture programs with which Ames has been involved include teacher workshops at Weber State College in Ogden, Utah, and Montana State University in Dillon, Montana.



DR. SANFORD KELLMAN . . . demonstrates the use of telephone equipment, slides and microphone in the Ames telelecture conference facility, located in the basement of Building 200. The slide pictured is the spiral galaxy M 81.

Thank You

"Dear Ames Friends:

My many, many thanks for a most memorable retirement luncheon and the wonderful gifts. They certainly topped off a pleasant and interesting 11 years at Ames and I am really going to miss all of you. Fortunately, I'll be able to keep up on your doings through the Astrogram and Dorothy.

I've had the good fortune of joining Powell Associates in Los Altos in what promises to be an exciting real estate career.

The best to all of you.

Sincerely,

Brad Evans"

"Many thanks to those who contributed towards making the retirement luncheon a memorable occasion.

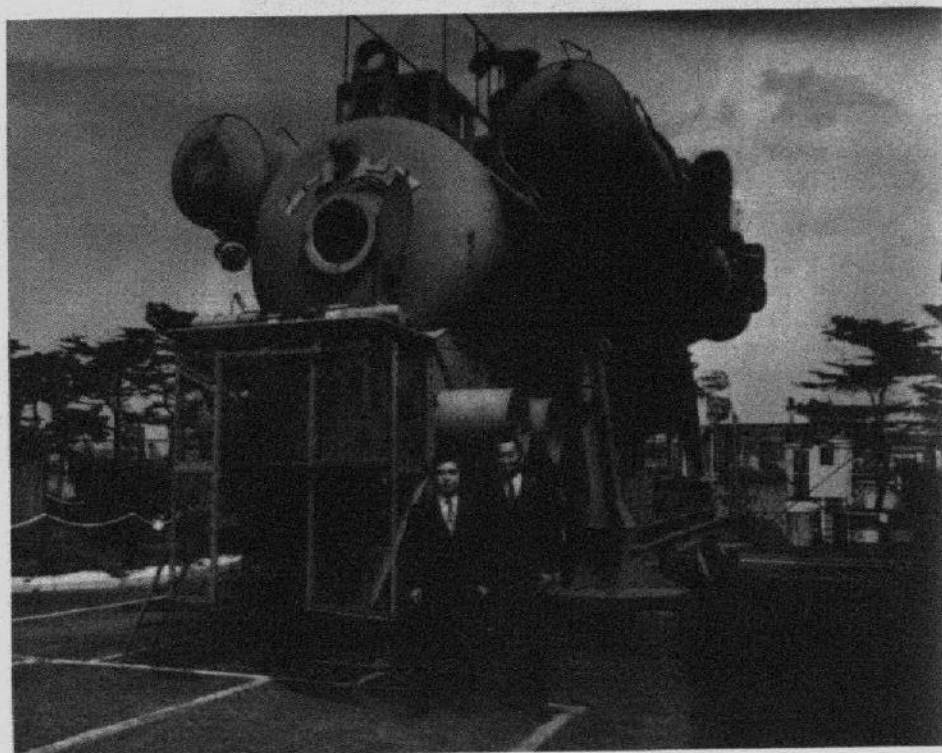
Russ and Jean Cravens"

Notice

Employees using the Moffett Blvd. Exit off Hwy. 85 to reach Ames in the morning should use the "new" third lane as a merging lane and avoid stopping where the off-ramp meets Moffett Blvd.

Rear-end accidents are the result of sudden stops. No stop sign exists at the corner in question; it is designed to allow people to proceed from the off-ramp on

to Moffett Blvd. at a reduced speed. Once the other two lanes are clear, one may merge left. There is ample time to perform the maneuver.



CHUCK KUBOKAWA (r.) . . . once named NASA's first aquanaut, inspects the Japanese built Seatopia habitat. It was used underwater by four Japanese aquanauts for 56 hours. Next to Kubokawa is Dr. Nakayama of the Japanese Science and Technology Agency.

Research and life in Japan

(Continued from page 1)

dominate the business world. "It is really a man's world in Japan," continues Kubokawa. "The women know nothing of women's lib! My teenage daughters attended school in Tokyo and introduced a little "women's lib" to the female students but it's probably all forgotten by now."

"Seventy percent of the women know very little about world events. They concentrate on their home and their family — the children especially. My wife was amazed to learn how much more familiar she is with international happenings than the average Japanese woman."

On the whole, the successful Japanese businessman is not likely to hide his money in some moldy mattress. He is happy to spend it and has recently gained the reputation of being a "big spender" when abroad. He may invest in foreign land since land is so expensive in Japan or he may but lavish gifts at the end of the year to repay debts incurred during the year. Some department stores gross nearly \$2 million per day the last week in December.

The Japanese believe that the new year should be met with a clean slate and that all old business must be completed by the end of the old year or serious problems will develop in the future. Ancient superstitions of this type are readily practiced by the 20th century Japanese people.

However, when it comes to Space exploration the Japanese generally seem to be more aware of the benefits available to man on Earth than do the American people. Kubokawa spoke to various universities throughout Japan and the question he heard over and over again was, "Why are NASA funds being cut when all the previous flights have been so successful and when mankind's future problems can be solved through space research projects such as Earth-oriented Skylab and Space Shuttle?" This is puzzling to both the students and the "average" working man in Japan.

Kubokawa plans to present a slide show on his nine month visit to Japan at the end of August. He will discuss how Japan is seen by the tourist and what lies behind the gloss. He will also talk on the problems Japan faces. The date for the show will be announced.

Ames' Personnel Division received the following letter of inquiry from Michael Cabak of Chandler, Arizona:

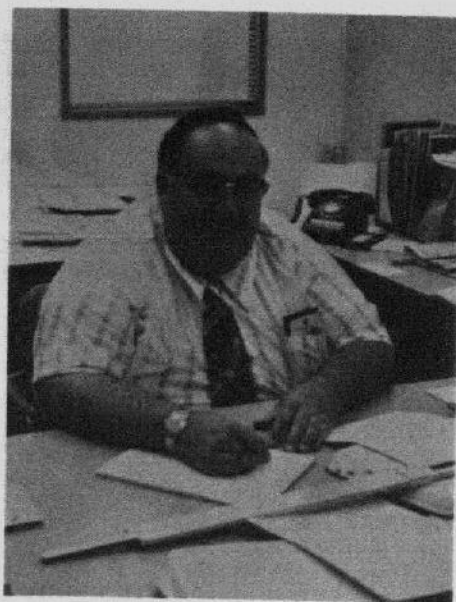
"Employment Office
NASA Ames Research Center
Moffett Field, Calif. 94035

Dear Sir:

I would like to be a space man and go to the moon. Please tell me what I should do now. I am eight years old."

An answer is being formulated.

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| astrogram | |
| Room 142 Admin. Mgt. Building Phone 965-5422 | |
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DON FROLICH

Transit Chairman

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study of an ultimate sophisticated transit system for the county.

Each of the 15 cities within the county is represented on the commission by either the mayor of the city or by an elected official, such as a city council member. The 10 other members include 5 people appointed by the County Board of Supervisors, 3 by the city of San Jose and 2 by the city of Sunnyvale. "These additional 10 people," says Frolich, "give extra muscle to the larger cities which is only fair, and also provide representation to segments of the community with special needs for transit — poor, minorities, elderly, etc."

Frolich's public work has benefited his position at Ames in that it has enabled him to excel in the technique of working with people in a smooth and effective manner. It was especially useful in the work Frolich did as Project Manager for the Flight Simulator for Advanced Aircraft (FSAA), which had unusual technical and contractual problems.

Project Pioneer: Questions & Answers

The Pioneer Project Office often receives letters of inquiry on the flight of Pioneer 10 and 11. The letters come from all parts of the world.

Charles F. Hall, Pioneer Project Manager, recently answered an inquiry from a young man living in Northern Ireland. This particular letter presented typical questions asked on the Pioneer Project. Hall's answers appear after each question:

(1) *What, in your opinion, would be the OPTIMUM distance for the Pioneer 10 Jupiter flyby?*

The optimum distance for closest approach to any planet means different things to different people. Factors such as planetary quarantine, scientific persuasion, communication capability, environmental constraints, etc., must be considered. For Pioneer 10 the radius of closest approach has been established as 202,601 km, and must be considered as optimum for this particular mission.

(2) *Is there any limit to the number of photographs the imaging photo-*

polarimeter can take of Jupiter and moons?

The number of images which the imaging photopolarimeter can record is limited primarily by distance from the planet or moons, storage time for a complete series of scans, and sequence of operations. A full disc picture requires approximately 600 separate scans, and since each scan is generated by the spinning motion of the spacecraft, approximately two hours would be required to record, store, and transmit the data. The time required to scan the planet for imagery is only half the story. The photopolarimetry data can only be recorded during periods of time when there is no image scanning planned. Thus, to accommodate both instrument functions, alternate image and photopolarimetry scans are planned. A practical limit to image scans during the last 24-hour period prior to periastron appears to be eight.

(3) *What image-quality of Jupiter's moons do you expect? (Compared, for instance, with Mariner 9 photographs of Mars' outer Moon, Deimos?)*

The moons of Jupiter are not considered as primary targets for the Pioneer 10 encounter; however, imaging one of the inner moons has been completely ruled out at this time. As far as image quality of the resulting pictures compared to photographs from the Mariner 9 mission is concerned, one can only say at this time that for a given set of object parameters, such as albedo, miss-distance, relative velocity, etc., the image quality of photographs from a Mariner-type camera system would be superior to that produced from the Pioneer imaging photopolarimeter system.

(4) *Is there any chance at all of remaining in contact with either Pioneer right to the fringes of the solar system?*

Because of the limitation of the communication system (onboard, coupled with the deep space tracking stations), Pioneer 10 will be capable of communication with Earth out to the orbit of Uranus, or 5.9 years after launch. The foregoing assumes no degradation in the onboard communication subsystem.

NASA-ASEE Summer Fellowships

Twenty five college and university faculty members, representing 16 states, are spending 10 weeks (June 18 - August 24) in cooperative research and study with the senior staff at Ames and the faculty of Stanford University in a Summer Faculty Fellowship Program. The Program is sponsored by NASA-Ames and the Stanford ASEE (American Society for Engineering Education) Chapter.

Supplementary to the activity the Fellows are performing in research at Ames, an opportunity to attend courses and seminars is offered as part of the Stanford Summer Session, as well as workshops and research seminars specially organized by Stanford for presentation at Ames.

The Fellows participating in the Stanford-Ames Program spend approximately 35 hours per week at Ames working with individual research engineers or scientists in fields of nearly every Directorate at Ames: Aeronautics and Flight Systems, Astronautics, Life Sciences, Development, and Research Support.

The Faculty Fellows are expected to spend at least 6 hours per week attending (or viewing on the Ames TV receiving facility) Stanford courses and/or seminars offered as part of the eight-week Summer Session (June 25 - August 18). Most departments at Stanford offer a number of advanced as well as elementary courses during the summer.

Four workshops are conducted dealing with important sub-areas of NASA's current research interests. Each workshop includes a series of concentrated lectures of either one or two days' duration by outstanding authorities in the field.

As part of the Institute's program, research conferences are held in which each Faculty Fellow gives a presentation on the research he is conducting. These conferences permit the Fellows to become better acquainted with their colleagues and to learn first-hand of the variety of research in progress at Ames. In addition to the research conference, a series of lectures is planned which features senior Ames scientists and their research contributions.

The Fellows gain knowledge of up-to-date advanced space research and utilize it in planning courses, outlining future research, obtaining grants, and developing technical reports and patents.

A similar program is held at Goddard Space Flight Center, Marshall Space Flight Center, Manned Spacecraft Center, Langley Research Center and Lewis Research Center in cooperation with the nearby universities and their local ASEE Chapter.

Two new EEO counselors

(Continued from page 1)

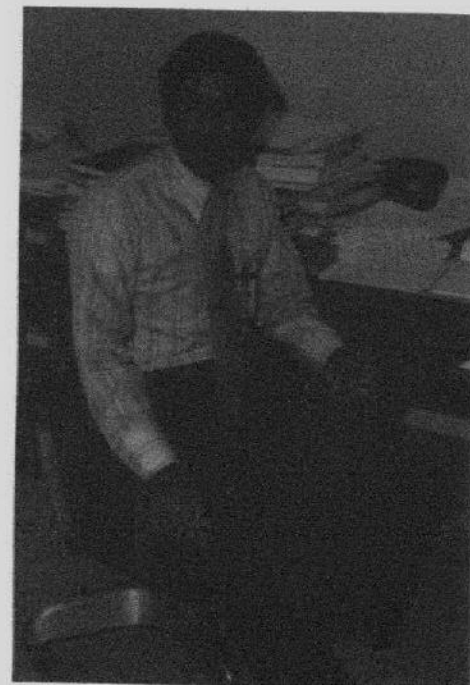
sciences and communications at Stanford University. He originally came to Ames on a military assignment and became an employee in 1963.

Ramos enjoys working with people and is looking forward to the 2 year assignment and the people who seek help from the EEO program. He says, "I'd like to feel that as an EEO counselor I can do some actual good and that my job is not just a position. EEO must be a reality for there to be concrete accomplishments. From what I have seen at Ames, EEO is a reality."

"I would like all Ames employees to feel that they can come to EEO with problems of discrimination whether they are associated with a minority group or not. If EEO is to continue to be a reality it must work for all the people."



DOROTHY DAVENPORT



RUBEN RAMOS

Local A.H.S. Chapter forming

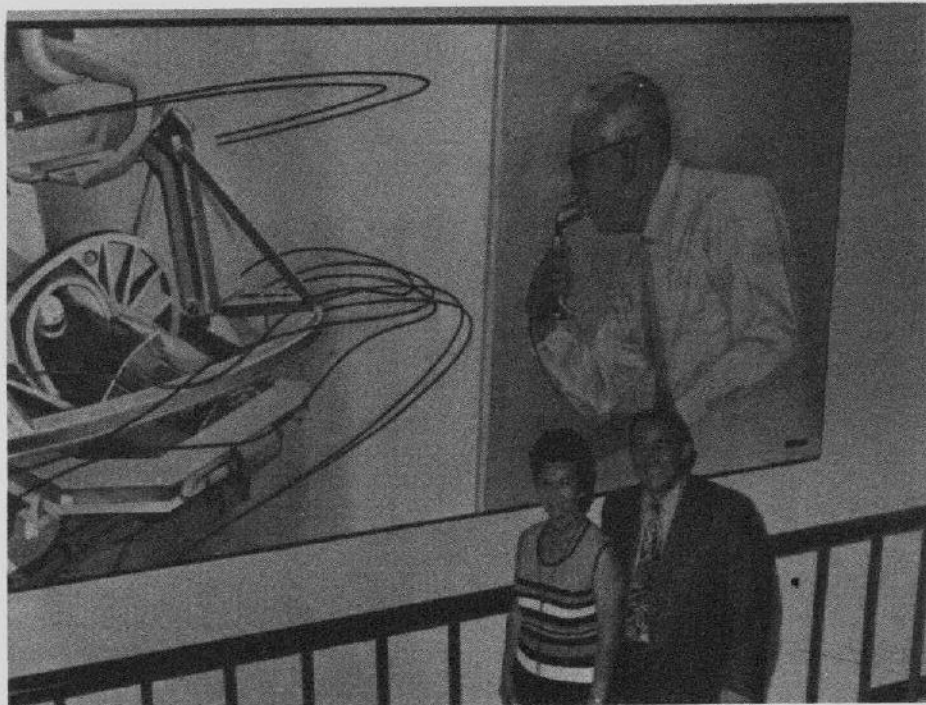
A local chapter of the American Helicopter Society (A.H.S.) is being formed by NASA Ames and AMRDL personnel. At a recent organizational meeting, Mr. James C. Biggers, of Ames Large-Scale Aerodynamics (Code FSA), was elected Chapter Chairman; Mr. John McCloud, FSA, was appointed Secretary Treasurer; Mr. Henry Velkoff of Headquarters AMRDL was appointed Program Chairman; Mr. William Orr of Lockheed was made Publicity Chairman; and Mr. Kipling Edenborough became Membership Chairman.

The A.H.S. is the representative professional society for aeronautical engineers specializing in research, development, applications of vertical flight and others, demonstrating sincere desires to advance VTOL (Vertical Take-Off and Landing) flight.

With a great many research, industry and operations people to draw upon in this area, the local chapter plans to present a wide range of technical topics in its program. Social gatherings, commensurate with the desires of the membership, will also be held.

People interested in joining the group are urged to contact any of the above officers. Meeting announcements will be mailed to members and published in "The Astrogram." There will be no local dues and non-members will be welcome.

Paulsen dedicates painting



AL PAULSEN... of Graphics and Exhibits Branch and his wife are pictured in front of a rendering which Paulsen created and recently dedicated to Ames. The painting is of Dr. Harald Smedal and the Five Degree of Freedom Flight Centrifuge and hangs in the lobby of the Flight and Guidance Simulation Laboratory. Dr. Smedal, who passed away in 1963, helped originated the life sciences effort at Ames and introduced stress testing with human subjects. He also pioneered the medical monitoring techniques that are used at Ames and was once Chief of Human Performances Requirement Branch.

Softball

The NASA Softball Team came from behind in the 6th inning to beat the UTC Titans by a score of 3 to 2. Roger Hedlund was on first base via a single. After two were out, Bob Bell, George Alger and Don Johnson came through with base hits. Don Johnson's double was the big blow scoring all 3 runs.

The following week saw NASA win its third straight game of the second half by defeating Watkins Johnson by a score of 2 to 1. In the second inning Don Johnson got a base hit and then stole second. Harry Cygielman batted Don home when UTC misplayed the ball. In the sixth inning Tom Knight led off with a triple and Bruce Ganzler hit a sacrifice fly to score Knight from third with the winning run.

Golf

Sixty four members responded in selecting golf courses for 1974 tournaments. The result of the selections is listed in the following:

Santa Teresa (62), Aptos (61), Riverside (60), Pajaro (59), San Jose (55), De Laveaga (54), Pasatiempo (49), Laguna Seca (48), Crystal Spring (45), Spring Valley (42), Del Monte (40), Los Pasitos (39), Pleasant Hills (37), Sunol Palm (36), Oak Ridge (34), Sunol Cypress (30), San Ramon (22), Calero Hills (21), Alameda (19), Lake Chabot (18), Tilden Park (16), Silver Pine (15), Skywest (14), Spring Hills (10), Sunnyvale (4), Boulder Creek (3), Fairway Glen (2), Cambrian Park (1), Spyglass Hill (1), Ranch Canada (1).

The top 11 selections will be scheduled for 1974 tournaments.

Our files are
OVERWEIGHT
and **UPTIGHT!**



Rx: REDUCE YOUR PAPER
CONGESTION 20% BY
AUGUST 10th!

Happenings

Captain Jacques-Yves Cousteau will speak on "An Artificial Ocean for an Artificial Planet" on August 7 at 8 p.m. in Flint Center at DeAnza College. "Intelligent Machines: Partner or Master?" is the topic Dr. Michael Arbib will present the following Tuesday evening, August 14. Both lectures are part of "The Next Billion Years" series sponsored in part by Ames. They are also presented the evening before the dates listed above in the University of San Francisco Memorial Gymnasium.

Up-coming lectures in "The Natural History of the Earth" series, co-sponsored by NASA-Ames/Stanford University, include "The Diversification of Life," by Prof. James Valentine, UC Davis (August 2); "The Ice Ages," by Prof. Clyde Wahrhaftig, UC Berkeley (August 9); "California Geology in Relationship to Plate Tectonic Mechanisms," by Prof. Ben Page, Stanford University (August 16).

People wishing to attend the free public series can enter Ames by using Gate 18. Signs will be posted to direct employees and visitors to the Auditorium in Building 200. The lecture begins at 8 p.m.

Up-coming Aeronautics and Astronautics workshops open to Ames employees and the Stanford community include: "Short Take-Off and Landing (STOL) Air Transportation Systems," by Prof. Richard S. Shevel, at Stanford University, Durand Bldg., Rm. 450 (8:30-11:30 a.m.; 1-3:45 p.m.) on August 2; "Fundamentals and Applications at Acoustic Damping in Gases," by Prof. Nikolaus Rott at NASA-Ames, Bldg. 213, Rm. 261 (8:30-11:30 a.m.; 1:15-4:15 p.m.) on August 7 and August 9 (8:30-11:30 a.m.; 1-3:45 p.m.); "Aerochemical Modeling of Atmospheric Pollution," by Dr. Wayland C. Griffith at Stanford University, Durand Bldg., Rm. 450 (8:30-11:30 a.m.; 1-3:45 p.m.) on August 16.

On August 7 at 10:30 a.m. Dr. T. Shimazaki of the Environmental Research Laboratory, National Oceanic and Atmospheric Administration, will speak on "A Two-Dimensional Theoretical Model for Stratospheric Ozone Density Distributions in the Meridional Plane" in the Auditorium of Building 245.

The last two ASEE-NASA Ames Summer Faculty Institute seminar topics are "The Oceans" (August 9) and "NASA Aeronautics Overview" (August 22) at 4:15 p.m. The series can be seen on television at Ames in Bldg. 241, Rm. 145A, or at Stanford, Skilling Bldg., Rm. 080 (auditorium) and is open to all Ames employees and all members of the Stanford community.

Speakers Bureau

Dr. S. N. Stein, Retired Chief of the Medical Office, spoke to the Redwood City Lions Club on July 16, discussing some of the medical benefit spin-offs of the space program. Earlier in June Dr. Stein also gave the keynote presentation at the Palo Alto High School's Science Department Recognition Program. His continued activity in the Speakers Bureau proves that those who retire from Ames do not retire their interest in Ames.

Among the recent retirees from Ames was Brad Evans, who as Technology Utilization Officer, and earlier as Public Affairs Officer, made countless presentations on NASA's space program, particularly on the subject of benefit spin-offs. Brad first organized the Speakers Bureau, and a big thanks goes to him for his untiring efforts to tell the NASA story.

Want Ads

Transportation

FOR SALE:

64 Chevy 6, Transportation car, \$250. Call 245-6754 after 6 p.m.

65 Chev Impala sta. wgn., 283-V8, P/S, P/B, AT, 64,000 miles, \$600. 739-9044 after 6 p.m.

68 V.W. Bug, good tires, radio, etc. Call F. Pfyl, 493-9372 after 5:00 p.m.

66 Dart, 4 door sedan, excellent condition, \$450, negotiable, call evenings 964-7658.

66 Buick LeSabre, A/C, PB/PS, Cruise Control. 4-dr hardtop, Comfortable transportation, \$625/best offer, 255-9221.

Housing

1 bedroom apartment, 550 Calif. St. Mt. View. \$125 per mo. Phone 967-2306.

Furn. apt., Kaanapali Maui, rec. facilities, use of car, Aug. or Sept. \$20/day single, \$25/day dbl., 961-6835.

FOR LEASE:

Furn. 3 bdr., 1 ba. home in Santa Clara. Large yd. & landscaping service included, avail. Aug. 15th. Call 379-1548 eves.

Miscellaneous

FOR SALE:

Reg. size mattress & box spring, almost new; reg. size quilted bedspread. Call Vera, 257-0501.

Lane's lg. walnut cedar chest, \$35. Couch; 7'3", 2 cushion, & Chair wht. and gold quilted fabric, \$300. 257-7454.

Mahog. D-bed, chest, dresser; interesting old fruitwood buffet; end tables; foot-locker. Moving, make offer. 325-4182.

EAZ-LIFT Frame hitch, 400 lb. capacity, \$70 new - sca. for \$35. Call David, 356-8316.

Maple cabinet with stereo-AM/FM radio (not in working order). Make offer, call 257-0501.

Student pilot interested in joining flying club at Ames. Call S. Kurasaki, ext. 6319.

Minox "spy" camera and associated equipment. Phone 241-6786.

Argus 300 projector w/slide changer, new bulb, 10 slide changers, 30 x 40 screen, \$25, 252-1229 after 6.

30" round, leather top, genuine mahog. any table, exc. cond., \$45, 252-1229, after 6.

FOR RENT:

1973 Scotsmaster self-contained, 16 1/2 ft. camping trailer. \$125/wk., available Aug. 1. Phone 374-7379.

FREE:

Exceptionally strong, healthy KITTENS. Raised outdoors, large selection. Free food, horoscope, if you like. 408/338-3156.

INSTRUCTION:

Aerobatics; D. Goodsell, Citabria available, Palo Alto Airport, phone 243-8345.

National Aeronautics and Space Administration • Ames Research Center, Moffett Field, California

Procurement appointment

The appointment of Lloyd J. Walsh as Chief, Procurement Division and Procurement Officer was recently announced by Dr. Hans Mark, Ames Director. Walsh is formerly of NASA's Flight Research Center (FRC) where he served as Director, Procurement-Supply Division and Procurement Officer. At Ames he succeeds Alvin S. Hertzog who has been appointed to the position of Assistant Director of Administration for Management Analysis and Special Programs.

Walsh was born in Hinsdale, Massachusetts and remained in that area and worked for General Electric until he moved to California to work for the Flight Research Center which was a part of the National Advisory Committee for Aeronautics. He has been with FRC for the past 21 years.

(Continued on Page 2)

Journalism interns at Ames

The Ames Public Affairs Office is currently participating in a summer journalism internship with students from California State University at San Jose for the second year. Five journalism students are gaining first hand public relations and writing experience for six weeks (staggered) or the equivalent of 240 hours.

The five students include Nancy Baker, Charlotte Bradford, Bob Chounard, Roxanne Miller, and Ed Sessler. They will all graduate from the University by June of 1974.

The internship is new for Ames but not for the University's journalism department. Students majoring in journalism must take the three unit class sometime before they enter their last semester before graduation; the time requirement is

(Continued on Pg.2)

Skylab III crew



SKYLAB III ASTRONAUTS (l. to r.) are Dr. Owen K. Garriott, science pilot; Jack R. Lousma, pilot; and Alan L. Bean, commander. They are aboard the Skylab I orbital workshop for man's first 56-day mission which was launched July 28. The workshop has been in orbit for 96 days.

Dr. Chamber's "English experience"

"My one year of post-doctorate research in England was an extremely exciting professional experience in an interesting social and cultural environment," said Dr. Alan B. Chambers of Environmental Control Research in a recent interview following his return from a year's residency in Farnborough, Hampshire. Dr. Chambers and his family flew to London in June of 1972 where Dr. Chambers worked with the Royal Aircraft Establishment one half of the year and the Royal Air Force (R.A.F.) Institute of Aviation Medicine the other half. Both are located in Farnborough.

The research Dr. Chambers performed at the Royal Aircraft Establishment was in the human engineering division. He worked on problems in communication in high-speed, low-level tactical aircraft. At R.A.F. Institute of Aviation Medicine he concentrated on the pilot and crew cooling garments.

Dr. Chambers found working with the British scientists to be a delightful experience. He said, "They are very warm and friendly people, unlike the standard image of British reserve which some of us hold as a frame of reference. We were often invited out for dinner and we enthusiastically participated in 'pub crawls' of which there is really nothing comparable here in the States! It's a delightful way of spending time and exchanging thoughts in a warm and friendly atmosphere.

"The stereotyped cold and reserved British trait doesn't apply to the professional working class with which I associated. It may be true of the upper social class, I don't know."

The Chambers family leased a 3 bedroom house in Farnham, Surrey for a reasonable \$190 a month. That was the only relatively inexpensive element in England compared to U.S. costs. Everything else---from bacon and eggs to gasoline---was at least as expensive as it is in the States; yet British salaries are only about one half what they are in the U.S. When asked how the English manage financially, Dr. Chambers replied, "They simply do without the extra frills we Americans indulge in . . . things like boats, swimming pools, color TVs etc. Though the extra bonuses of material wealth are void from the daily life of the British they are not suffering for lack of it. In fact, as I reflect back

(Continued on Page 2)

Flying laboratory negotiations begin

This week Ames selected California Airmotive Corporation of Burbank for negotiations possibly leading to a replacement for the "Galileo" Convair 990 aircraft lost in the mid-air collision last April. The aircraft replacement is viewed in part as a testimonial to the eleven NASA crewmen who lost their lives aboard the "Galileo" and their important work.

Director Dr. Hans Mark selected the firm after reviewing several proposals made to NASA since June when a call for bids was issued. California Airmotive Corp. is proposing to furnish NASA a Convair 990 and negotiations will be based on the aircraft acquisition, spare parts, and modifications required to prepare the aircraft for airborne science missions.

If negotiations are successful, NASA will resume its airborne science program with a virtually identical aircraft. Specific flight activities are in the planning phase and will be announced when negotiations are concluded.

Continuance of the airborne science program and the use of the aircraft as a national laboratory will make possible a variety of important missions for Earth and sky viewing with infrared radiometers, microwave radiometers, cameras, tele-

scopes, and other special instruments. The replacement aircraft, when fully modified and operational, will continue to play a major role in critical science and earth applications studies such as the Global Atmospheric Research Program's Atlantic Tropical Experiment next spring.

Underground air storage

Construction of 1200-foot-deep underground wells for storing high pressure air will begin at Ames this month to provide an additional high pressure air supply needed for wind tunnel testing of space shuttle models.

This addition to Ames' air system, which is scheduled for initial use in September and completion next January, will be accomplished by relocating surplus air storage casings from the Pluto Reactor Test Facility in Jackass Flats, Nevada.

A surplus air compressor from an Air Force liquid oxygen plant in Santa Susana, California, will also be relocated to Ames for use in the Ames High Pressure Air System.

The air in this additional storage system will furnish the air required to simulate the rocket plumes of the

(Continued on Page 2)



JOURNALISM INTERNS . . . Rosanne Miller (l.) and Charlotte Bradford review a news release draft.

(Continued from Page 1)

to discourage students from taking advantage of intern sites and cultivating them for possible future permanent job sites.

Bay Area magazine and newspaper companies provide areas for on site journalism---reporting and editing---experience. Some companies offer to pay the student's tuition; some will even pay the student an hourly wage. There are about 200 interns working in the Bay Area this summer from the University's journalism program.

A student chooses the site where she/he wishes to work. She/he is either accepted or rejected depending on space available. A second choice may have to be made in the case of the latter.

The internship class requires that each student send in a resume at the end of each week stating the weekly activities and projects worked on.

Charlotte and Roxanne were the current interns at the time of the interview for this article. Both women related that they have found Ames to be extremely stimulating for their writing interests. Charlotte has concentrated on investigative stories in the Life Sciences directorate while Roxanne's work has been strictly in Aeronautics and Astronautics. Ames was their first choice for site work. After the first two weeks of orientation both agree that their work has gone smoothly.

Air storage

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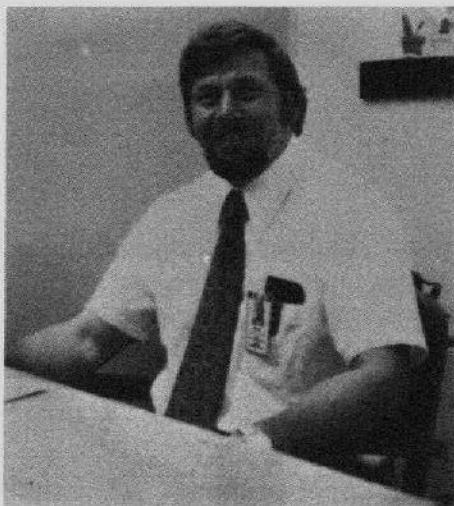
space shuttle launch configuration for tests in the Unitary Plan Wind Tunnels.

The need arose for this additional air supply when the decision was made to launch the space shuttle in a parallel burn configuration. This refers to the simultaneous rocket fire of both the space orbiter and its booster on the launch pad. The space orbiter will be launched by the combined thrust of the booster's

Appointment

(Continued from Page 1)

Aside from being Chief of FRC's Procurement-Supply Division and Procurement Officer, Walsh has been very active in other areas at FRC. He just recently received a special recognition award for leadership in the Equal Employment Opportunity (EEO) program for "his positive actions in implementing EEO in those areas under his supervision." He has served as past President and former Director of the Antelope Valley Chapter of the National Control Management Association (NCMA) and he has developed a Youth Education Program for this association. He hopes to remain active in the local NCMA chapter.



LLOYD J. WALSH

When asked in an interview of his future at Ames and feelings toward Ames, he said, "I'm looking forward to being a part of Ames with a great deal of enthusiasm. I've had a pleasant introduction to the Center and the area. Though I hated to leave the friends I made at FRC, I heartily welcome the new challenge and new environment at Ames. I've obviously run across Ames' record of greatness and hope to contribute to it."

Walsh and his wife, Mary, live in Los Gatos. They have two married daughters, Kathaleen and Patricia, and one grandson, Bryan. Kathaleen and her husband live at Edwards AFB while Patricia and 1 1/2 year old Bryan are living in Los Gatos with the Walshes since Patricia's husband is presently serving a one year tour of duty in Thailand.

Outside his work career interests, Walsh enjoys sports. He particularly enjoys golf and fishing.

twin solid-fueled rockets and the three liquid-fueled rockets of the space orbiter.

The effects of the simultaneous burning of these five engines present a very difficult problem to analyze and must be studied in wind tunnels.

Dr. Chambers's "English experience"

(Continued from Page 1)

I see them as perhaps happier people in general than many Americans."

The British also, according to Dr. Chambers, live at a slower pace than the Californians and change is not something that occurs overnight. They remember their country's history as if the facts were tattooed or inbred in them.

A good example of the historical tie occurred on the second day Dr. Chambers was in Farnham. He was backing his car out of the driveway when a neighbor walked by and heard Dr. Chambers speak. He asked, "Are you and your family from Canada?" Dr. Chambers answered, "No, we're from the States." The neighbor replied, "Oh, you're Colonials!" The British will just never forget.

The research in England, however, is certainly comparable to that of the United States, and Dr. Chambers took advantage of his work situation to learn as much as possible. He saw how the research institution tackled and defined a problem; he saw them research and disseminate the results.

He also took advantage of his locale and toured England, Wales and Scotland thoroughly. He and his wife, Coeta, and their two daughters---ages 6 and 9---also car camped on the Continent for the month of June. They toured Belgium, Germany, Switzerland, Northern Italy and France. The tourist season had not yet begun and car camping allowed them to really get a taste of the countries. Coeta's fluent German was naturally a great



DR. CHAMBERS . . . photographed the Concorde (pictured above) flying over the R.A.E. from a hill behind the house he leased in Farnham, England.

asset to their ease in touring the foreign lands and meeting the people.

Dr. Chambers highly recommends a temporary work assignment abroad to anyone toying with the idea. "I and my family," emphasized Dr. Chambers, "gained great insight and experience that could not be gained by reading or studying any number of books here at home. My daughters attended rigorous schools, learned lots and adapted well. We all had a marvelous educational time, but we were glad to come home to California after being gone one full year."

New Systems Studies Division Chief

Apollo 15 Astronaut Alfred M. Worden has been named Ames' new chief of the Systems Studies Division by Director Dr. Hans Mark. Worden, a senior aerospace scientist at Ames since September of 1972, will direct the Division's efforts to provide NASA and the Center with studies and advanced concepts of future research programs.

A lieutenant colonel with the Air Force on active duty with NASA, Worden was command module pilot for the Apollo 15 lunar mission. He is a 1955 graduate of the U.S. Military Academy and holds Master

of Science degrees in Astronautical/Aeronautical Engineering and Instrumentation Engineering and an honorary Doctorate of Astronautical Science from the Univ. of Michigan.

Room 142
Admin. Mgt. Building
Phone 965-5422

astrogram

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Editor Meredith Moore
Reporters NASA Employees

Deadline for contributions:
Thursday between publication dates

Aircraft photograph moth infestation

The damage done by the Douglas fir tussock moth to forest lands in Washington and Oregon is being monitored this summer with infrared photography taken by Earth Resources Survey Aircraft of Ames.

At the request of Washington State's Department of Natural Resources, two flights over the Blue Mountain area in Southeast Washington and Northeast Oregon will help determine the extent of damage done by the moths this year.

Over the past two years, extensive damage has been done to the Douglas fir, Ponderosa pine and other various species in this Blue Mountain area of the Northwest. Some 430,000 acres were damaged last year by the moth, affecting numerous private owners and companies.

Washington's Department of Natural Resources and the U.S. Forest Service, in looking for an answer to the problem, want to determine this year's damage. More photographs next year may then show if the moth is spreading or dying out.

The first of two flights, flown June 27, photographs the forest lands before any damage occurred. A second flight will be flown in late August to detect any injured trees. Normal, healthy trees will show up on color infrared photographs as red, whereas damaged trees will initially look yellow and later appear black.

Speakers Bureau

Recent Presentations:

*Charles "Chuck" Kubokawa of Man-Machine Integration Branch, told the Redwood City Rotary Club about his experiences as an aquanaut on the Tektite II project in a program August 14.

*Those people who attended the Jacques Cousteau lecture at DeAnza College, as part of the "Next Billion Years" lecture series, got an unexpected added bonus. While waiting for Captain Cousteau (who was detained by a car accident in Los Angeles), the crowd heard Al Worden, new Systems Studies Division Chief, describe his experiences as an Apollo 15 astronaut.

*Barbara Busch, Manager of the Speakers Bureau, spoke to a graduate class in "Ecology and Technology" at San Francisco State University on August 1. Her presentation (which the class heard between that given by a Standard Oil representative and one delivered on the subject of anchovie fishing in Peru) was on the spinoff benefits of the space program.

Future Presentations:

*Angelo Margozi of Earth Science Applications Office, will address the El Camino Real Chapter of the Air Force Association on August 17. Margozi will discuss both the Earth Resources Technology Satellite and the Ames-managed Earth Resources Survey Aircraft and the work being done with those programs.



CINDY SMITH . . . , an aerospace engineer, is one of many women at Ames performing interesting research work vital to future NASA programs.

Aerospace engineer's career at Ames

EDITOR'S NOTE:

This is the first of a series introducing some of the professions of women at Ames.

Cindy Smith, an aerospace engineer in the Aeronautical Studies Branch of the Systems Studies Division is one of three enthusiastic women engineers in the group which studies future advanced aircraft designs. Cindy has been an Ames employee for ten years. She came to Ames directly after graduating from the University of California at Santa Barbara where she earned a Bachelor of Arts in Math in 1963.

Cindy has worked with the Systems Studies Division group since she first arrived at Ames; ten years ago the Division was known as "Mission Analysis." She is extremely happy with her job in the Division and is especially pleased to mention that, "The nucleus of the original Mission Analysis group still exists in the Division today as does the enthusiasm and ability to which the success of the group can be attributed."

Cindy received her Masters Degree in Statistics at Stanford University by utilizing the NASA/Ames Honors Coop System. The Honors Coop System is one of the many programs offered through the Ames Training and Special Programs Branch.

When asked to generally state the functions she performs in her work as an aerospace engineer Cindy replied, "I look at advanced aircraft which might be in operation from the year 1985 on. I research a concept using "paper aircraft" techniques to see if it will be beneficial for NASA to study. I concentrate on predicting the economics of a concept, i.e., how much it will cost to build and operate the aircraft and how much profit the operator can expect. I look at all

economic aspects including such things as noise and emissions pollution and the possibility of fuel shortages.

"For example, in 1968 I did a Liquid Hydrogen Study to determine the cost of producing liquid hydrogen as an aircraft fuel. I deal mostly with future commercial aircraft. It is rather like looking into a crystal ball." Cindy is currently working on the economics of short and long-haul transports.

Cindy's career does not restrict her to "all work and no play." She has many outside interests and hobbies. Some are even Ames or work related---like being an active member of the NASA Subcommittee on Young Employees; jogging at noon; and taking NASA/Ames-Stanford classes.

Others are not work related! Cindy, being a "continuing education nut," enrolls in classes by the dozens. She has taken classes in tennis, sewing, gourmet international cooking, skiing, guitar, recorder (the instrument), etc. The list is endless and the amazing part is that she is quite successful in each new endeavor.

In her work at Ames, Cindy has not felt any sort of discrimination as a woman. She has traveled extensively in her job to such places as New York, Denver, New Hampshire, NASA Headquarters, Wallops Station and Goddard Space Flight Center and has taken advantage of the extensive exposure NASA has allowed her. The experience has really given her the bug to travel. As a member of the Ames Jet Setters Club she is looking forward to an 11-day vacation to Dubrovnik, Yugoslavia in October.

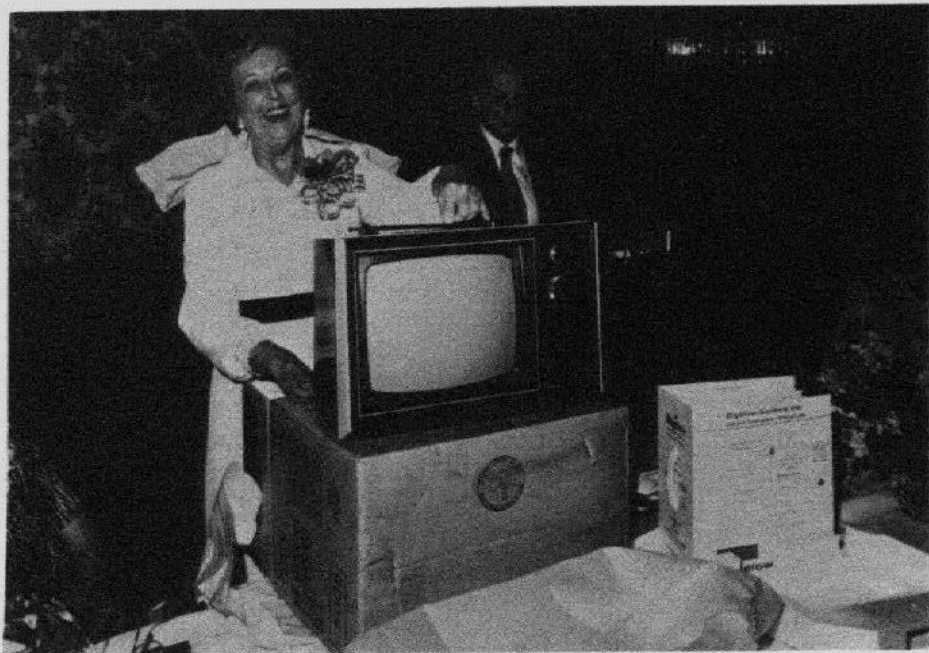


Paul F. Yaggy receives award

Paul F. Yaggy (right) received the 1972 Dr. Alexander Klemin Award for his "notable achievement in the advancement of rotary wing aeronautics" from Dr. Robert Loewy, Dean of Engineering and Applied Sciences, University of Ro-

chester, during the annual awards presentations by the American Helicopter Society, May 11.

Yaggy is the Director of the U.S. Army Air Mobility Research and Development Laboratory located at Ames.



EVELYN HARPER . . . obligated her last "purchase request" by retiring on June 30. Evelyn joined NACA here at Ames in 1948 and worked her entire Ames career in the Procurement Division. Evelyn's many friends wished her well at a Retirement Dinner at Michaels Restaurant on July 18. Evelyn is pictured with Al Hertzog whom she worked for through those years.

Golf

Thirty-six members played in the rescheduled tournament at Oak Ridge on July 28. It was a best ball two-some tournament, and the winners are:

First flight: V. Oyama and C. Eddy, 1st; B. Beam and J. Nelan, 2nd; B. Eddy and D. Davis, 3rd. Second flight: K. Givens and B. Gray, 1st; N. Barsi and Y. Sheaffer, 2nd; R. Richardson and T. Nelan, 3rd.

The next regular tournament will be held on September 8 at Laguna Seca in Monterey. Anyone interested in playing please contact John Hawkins, ext. 5974.

Thank You

"Dear Friends,

Thank you all for your participation in my retirement luncheon. It was a great luncheon with a great group and is deeply appreciated. The zoom lens binoculars are beautiful and perfect for bird watching. Although my wife says the only bird watching I do is confined to chicks, the zoom lens should work out quite nicely in that respect also.

Thanks so much, again. Hope to see you all from time to time.

John Van Etten

"Liz and I want to again thank all our friends that attended our retirement luncheon, and those that were unable to attend for the fine luncheon and gifts.

I'm looking forward to using the portable power saw and watching Liz use her carpenter's apron and hammer!

Larry Graham"

Could this have happened to you?

All of us have been taught in our youth that oily rags tossed in a heap can ignite spontaneously. How many of us would think twice about throwing two 6-inch square rags in the trash after they had been used two hours earlier to polish some furniture with linseed oil?

Such was the case at Hank Asch's home (he's of the Reliability and Quality Assurance Office) on the night of August 2 when the two small rags were tossed in the trash under the kitchen sink at 11 p.m. By 5 a.m. the kitchen was ablaze and the house filled with smoke. Fortunately, one daughter awoke and her screams alerted the family and all got out safely through the master bedroom into the back yard.

The fire department arrived and the fire was quickly extinguished with the kitchen completely destroyed and extensive smoke and water damage throughout the house.

Could this have happened to you? Would you or members of your family recall the early lesson about oily rags and spontaneous combustion? Think about it. Perhaps Hank's costly lesson will save you from a similar tragedy.

ARA tennis

Join the ARA Tennis Club. Send \$2 (\$1 for initiation, \$1 for annual dues) to Helmut Poppa, 240-1.

Winners in the second round of the current ARA Tennis Club tournament are Chan, Coon, Monfort, Neel, Northwang, Schroeder, Snet-singer, Soderman and Starr. Those eliminated in the first round continue their playoffs.

Happenings

Dr. James Bonner will speak on "Beyond Man's Genetic Lottery" on August 21 at 8 p.m. in Flint Center at DeAnza College. "Ending Man's Isolation in the Universe" is the topic Dr. Bernard Oliver will present the following Tuesday evening August 28. Both lectures are part of "The Next Billion Years" series sponsored in part by Ames. They are also presented the evening before the dates listed above in the University of San Francisco Memorial Gymnasium.

Upcoming lectures in "The Natural History of the Earth" series co-sponsored by NASA-Ames Stanford University, include "Volcanism," by Prof. Alexander McBirney University of Oregon (August 23); "Earthquakes," by Prof. Bruce Bolt, UC Berkeley (August 30).

People wishing to attend the free public series can enter Ames by using Gate 18. Signs will be posted to direct employees and visitors to the Auditorium in Bldg. 201. The lecture begins at 8 p.m.

A seminar for the Press on the Illiac IV computer will be held from 9 a.m. to 12 a.m. on August 22. This seminar is being presented by the NASA Institute for Advanced Computations at Ames.

Want Ads

Transportation

FOR SALE:

67 Cherokee 140, Exec. Group, 4 seat, FGP, EGT, CAT, Escort 110. Fcty new eng, 900 or 2000 TBO, 3300, \$6900, L. Williams, 248-2481.

69 Pontiac, Firebird 350, A/T, P/S, vinyl roof, good cond., \$1400, 262-6697.

68 Ply. sport sub. stat. wgn. 9 pass, V-8, heavy duty sus., 8 track tape, 47,000 mi., \$1000, consider sm. car trade, 739-0453.

63 Chevy, body set up for 396, \$50, 739-5840.

64 Chev. Bel Air, 4 dr., 283, A/T, radio, new batt., good tires, one owner, \$245, 967-4520.

72 Audi, 100 LS, 4 dr. beige sun roof, A/C, 8 track stereo, AM/FM radio ask \$4000, 961-1729.

66 Pont. GTO, H/T, A/T, P/S, P/B, \$700, 493-5905.

65 Valiant sta. wgn. new tires & brakes, 55,000 mi. \$350, 244-8599.

71 VW Superbeetle, exc. cond., \$1500 call R. Mac Elroy, 736-4858.

FOR TRADE

65 Ford Country Sq. wgn. good cond. for pick-up camper des. for 3/4 truck, 738-2972. will neg. cash diff.

Housing

FOR SALE: Palo Alto, 3 bdrm., 2-ba. Eichler, fam. rm. AEK-Gunn School Dist., S. Dueker, 493-5275.

FOR RENT: New S. Tahoe cabin, 2 ba., sleeps 8, 5 mi. from State-line, \$50/weekend, \$130/week. Sinnott, 225-8043.

Vacation cabin, car & surfboard, on Kauai, avail year-round, keep this ad, 867-0972.

RIDE NEEDED: From Cherry Chase Sunnyvale, from 7:30 - 4, M-F, call Randy 739-5840.

Miscellaneous

FOR SALE:

Camper shell for 8' long bed truck, boat rack, exc. cond. \$135, 941-4148.

Peugeot PA-10 ten-speed bike, 23 1/2" frame, exc. cond. \$125, 243-7750 after 5.

Armstrong flute, \$80; Olds. trumpet, \$100; both exc. cond, 252-4535.

Thorough bred Doberman pups, 5 wks. old, 3 females, 4 males, blk. & red, 353-1589.

13' boat (runabout), w/trailer, 18 HP Johnson, good shape, \$325, Suzuki-80cc, \$150, 656-5262.

FREE: Swing set, you come get it, 248-5546.

Fischer "Electra" AM/FM console, with Garrard changer, \$60, Exercycle, \$15, 257-1395.

Mens 3 speed bicycle, hand brakes, basket, Sears, made in Austria, \$20 321-0625.

Table cloth & 12 napkins, hand emb. in Florence, Italy, never unfolded, \$75, 736-6999, H. Asch.

Boys or girls 20" bike w/training wheel, \$17, tote bag, like new, \$10, 321-1858.

3-drawer dresser w/night stand, good cond, \$75, 321-1858.

1/4 share, 1946 Taylorcraft 65 HP, 630 hrs smoh, new radio \$525, 736-5280.

1/5 share of Lido 14' sail boat, exc. cond. very low utilization, trailer & cover, \$200, T. Cook, 867-5982.

National Aeronautics and Space Administration • Ames Research Center, Moffett Field, California

Kubokawa named chairman



CHUCK KUBOKAWA . . . will see that "scientific resources available at DeAnza and Foothill Colleges are related to a broader spectrum of the community."

Charles C. (Chuck) Kubokawa, head of the Ames Human Factors Group, has been elected chairman of the DeAnza and Foothill Colleges' Space Science Center.

Kubokawa a San Francisco-born Nisei, recently returned from Japan, where he conducted an eight month research project under a Japan Science and Technology Fellowship Award.

The advisory committee guides the activities of the new Foothill College Electronics Museum, De Anza College Minolta Planetarium, and other facilities and services of the Northern Santa Clara County community college district.

Ames participates in county fair

Have you ever seen a woman "lineman?" Have you ever "run into" a woman fork-life driver? Have you dialed "O" for Operator lately and heard a male voice answer? Or have you had a male typist in your Division? If you can answer "yes" to at least one of these questions, you are witnessing a change in industry's traditional job roles.

Tommy Smith, a Procurement typist and buyer trainee, and John Torres, a machinist, were the Ames participants in the Santa Clara County Fair (August 17-27) booth entitled "Opportunities in Industry" sponsored by the Industrial Participation Program.

Smith and Torres volunteered their services through the Ames Educational Programs Office. They were each photographed at their separate job sites and asked to state in 3 or 4 paragraphs how they attained their present position and what their future work plans are. Slides were made of the photographs and the statements were taped. The slides and tape were used in a continuous running presentation at the booth with slides and narration from other employees holding interesting and unusual jobs in local companies.

Tommy first came to Ames 2 1/2 years ago as a Neighborhood Youth Corps (NYC) enrollee. In his presentation he tells how one day the placement specialist from Per-

Summer visitors from abroad

Summer tours at Ames attract many foreign groups. August is an especially popular month for tourist groups of all ages who speak very little (if any) English and come from as far away as Japan.

David Wilson, the Ames contractor tour guide employed by Oklahoma State University, leads the various groups around the Center discussing the aeronautical and bio-science activities at Ames . . . in English. He directs an interesting and stimulating tour to foreign visitors and Americans alike. Each

group thoroughly enjoys the hour and 45 minute view of Ames and its research facilities.

Wilson offers to provide translators (various volunteer Ames employees) to each group. There are many employees who speak a second language fluently and are very willing to assist in a foreign visitor tour presentation.

Some tour groups bring their own translators; however, no matter who provides a translator, most groups prefer to hear the English for ear (Continued on Page 2)



C. A. SYVERTSON, DEPUTY DIRECTOR, . . . (2nd row, far l.) recently welcomed visiting students from Japan to Ames. David Wilson, (4th row, far r.) guided the group around Ames with the help of Mamoru Inouye, STT (3rd row, far l.), Dr. Masato Yoshikawa, RFE (1st row, far r.), Paul F. Dexter, RFS (2nd row far r.), and Dr. Komoda, a research associate (3rd row, far r.).

Pioneer 11 enters asteroid belt

The Pioneer 11 spacecraft, headed for a 1974 rendezvous with Jupiter, began a seven-month journey through the asteroid belt on August 18.

The spacecraft is scheduled to exit the rocky, 251-million-kilometer (156-million-mile) wide belt on March 12, 1974.

Pioneer 11, launched last April, has now covered over one third of its one-billion-kilometer (620-million-mile) journey to the giant planet, traveling at a speed of 90,000 kilometers per hour (56,000 miles an hour).

The asteroid belt, believed to be the most hazardous part of the long journey, was crossed safely by Pioneer 10 last year.

The asteroids are small bodies, most of them less than a mile in

diameter, that travel around the Sun like the planets. Several hundred have been identified and named but thousands more exist.

Although some come in closer to the Sun than Earth's orbit and others go out beyond Jupiter, most of the asteroids travel in a doughnut-shaped region between the orbits of Mars and Jupiter.

Pioneer 11 will reach Jupiter in early December, 1974, about a year after its twin, Pioneer 10, encounters the planet.

Pioneer 10 is now 80 million kilometers (51 million miles) from Jupiter and 544 million kilometers (338 million miles) from Earth, traveling at a speed of 41,680 kilometers an hour (25,900 miles an hour).



MEMBERS OF THE INDUSTRY PARTICIPATION PROGRAM COMMITTEE . . . and a booth participant include (from l. to r.): Barbara Busch, Ames education specialist; John Torres, Ames machinist; and Fred Becker, Chairman of the committee and Vice President of the Santa Clara County Board of Directors.

Summer visitors from abroad

(Continued from Page 1)
training and practice. Wilson has learned to speak slowly and accurately using a minimum amount of scientific "lingo."

Wilson's tour begins with a slide show which orients the visitors to the kinds of work done at the Center. The slides are usually presented in the Auditorium of Building 201 and they normally take 25 minutes to review. Current projects such as Pioneer, Viking, Short and Long Haul Transports etc. are introduced.

The walking portion of the tour begins at the Auditorium after the slide orientation with the first stop being the 40 x 80' wind tunnel. Wilson goes over the major features of the tunnel and its purpose in aeronautical research.

The second stop is the Flight Operations Hangar. Each aircraft present is viewed and discussed; the depth of discussion depends on the background of the group. Wilson can detect the extent of his visitors' knowledge by the quality of their questions.

The third and final facility introduced on a "typical" foreign visitor tour is the Flight Simulator for Advanced Aircraft (FSAA). It is, as are all the facilities on the tour route, quite impressive especially when operating).

A typical foreign group might be like the recent Japanese Rotary sponsored group as pictured. Or it might consist of a group of 30 teachers from the Irish Teacher's Association from EIRE (the Irish Republic) like the one at Ames on August 22. Wilson oriented the group in the morning with slides and a walking tour of the above mentioned facilities. The group was also treated to a talk by Dr. R. T. Jones and Col. Al Worden.

Many of the foreign organizations make it a point to return to Ames for a tour each summer with different participants. The Foreign Study League is one such organization. Spanish and French exchange students living and attending school during the summer in the Bay Area enjoy a tour of Ames. They need the English exposure and they learn more about the research of NASA. They, like other foreign groups, also make it a point to tour Disneyland, Safari Land, Knott's Berry Farm, Marine World, Golden Gate Park, etc.

Wilson presents Ames in an educationally enlightening fashion to all visitors---domestic or foreign. He can gear and tone the tour down in technical jargon or he can tune it up and speak on a relatively high scientific level. Accompanying

translators can be beneficial but aren't always necessary.

Tours at Ames are offered three times a day (10, 1 and 2:45), Monday through Friday, for groups ranging in numbers from 10 to 30. Visitors must be over 9 years old. Tour arrangements can be made at extension 6497 or by mail to the attention of the Tour Office.



TOMMY SMITH

(Continued from Page 1)

sonnel asked some of the NYC students if they could type. Tommy said "yes" since he learned to type in high school and had been tested as fast as 105 wpm. He was placed in the Procurement Division and became a Federal civil servant. Besides typing, Tommy began training as a buyer in July.

John came to Ames in June as a part-time employee under the Foothill Junior College District's work-experience program while attending DeAnza College. He relates in the slide program that he is working toward his A.A. in Machine Tool Technology. At Ames John runs a machine which does drilling, milling, boring, tapping and can be run by a punch tape, called numerical control.

John stressed that he has been contacted by other companies as a result of his professional work at Ames; Tommy emphasized that an entry level typing job such as his could lead to more responsible jobs.

A schedule was set up for each employee participant to appear at the booth for a 2 hour session some time during the Fair's 10-day session to answer questions that the public might have. The participants were to inform some interested inquirers that a State of California Human Resources Development booth was located next to the Industrial Participation Program for job counseling purposes. In essence, Tommy and John were at the booth to relate enthusiasm and personal experience---not for counseling---and they reminded people that many industries have training programs.

Other companies involved were



ALICE LISTER AND JAY BEARDSLEE . . . of Litcher Special Services Company demonstrate the equipment used for emergency purposes in the Ames Duty Office.

"Dial 5555"

You have seen it posted and you have seen it pasted to your telephone, but have you ever wondered what really happens and who answers when you dial 5555?

The Emergency Control Duty Office was established early in 1971 to coordinate and process all emergency situations at Ames and to monitor a newly installed central alarm system. Litcher Special Services Company, a minority contractor, was awarded the contract to operate the new Duty Office.

Prior to 1971 the only emergencies that were mentioned in the telephone directories and on posters at Ames were civil defense, fire and ambulances. When any other type of emergency arose it was left up to the caller to decide who to phone.

One of the first actions of the newly created Duty Office was to envision what possible emergency situations could arise. They then

established a standard operating procedure for each of the situations. In most emergency cases anywhere from 3 to 6 different people and/or stations are notified and advised of the situation in order to solve the problem once the Duty Office is originally contacted.

At the present time there are written instructions for over 200 emergencies as to who must be alerted to alleviate the problem. The dispatchers staff the Duty Office 24 hours a day, 7 days a week. The day shift consists of 2 operators and 1 supervisor; the other two shifts have one dispatcher manning the office.

The operator automatically requests the caller's name and telephone number when an emergency call is received so that the caller may be contacted if more information is required.

The types of emergency calls handled now are of a wide variety. Besides civil defense, fire and ambulance, there are pipe breaks, acid spills, flooding, natural or explosive gas, and even air conditioning failure. Employees are advised to "Dial 5555" in an emergency and should avoid trying to solve a problem themselves. Remember, the welfare of others working with us must be protected too!

Fairchild, General Electric, Lockheed, Pacific Telephone, Sylvania, United Technology Center and Western Electric. Unusual job positions represented were: a female security officer, a male telephone operator, a female telephone supervisor with strictly all men to supervise, a female senior instrumentation engineer, a female draftsman and a female engineer holding a Phd.

Most participants had the traditional handicaps of being Black, Oriental, Mexican-American, female, having little or no formal education, and/or being of foreign decent and exercising a thick accent. Yet they were all young (35 and under) and had worked through the "system" and were earning double and triple their original entry level salaries.

Room 142
Admin. Mgt. Building
Phone 965-5422

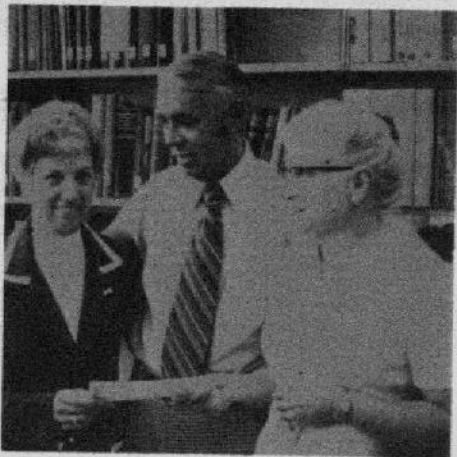
astrogram

The Astrogram is an official publication of the Ames Research Center, National Aeronautics and Space Administration, Moffett Field, California, and is published bi-weekly in the interest of Ames employees.

Editor Meredith Moore
Reporters NASA Employees

Deadline for contributions:
Thursday between publication dates

2 Special Achievement Awards



Jean M. Luciani, (L.), a library technician in the Life Sciences Branch Library, received a Special Achievement Award this month for her "dedication to duty and superior performance."

Mrs. Luciani received a letter from Deputy Director Clarence A. Syvertson for "using her initiative to improve on previous years' efficiency by streamlining procedures and records which resulted in less time in preparation." She also received a check for \$150.

Pictured with her are Bill Johnson, Chief of Technical Information Division, and Betty Sherwood, supervisory librarian of the Life Sciences Branch Library.



Elizabeth H. Thomsen, Chief of Records and Reports Branch, recently received a Special Achievement Award for her "unexcelled knowledge of personnel regulations" and "her well-known discretion in handling information relative to employees and their discussions with her concerning proposed personnel actions."

Mrs. Thomsen received a congratulatory letter from Director Dr. Hans Mark and a \$225 check for her superior performance.

Mrs. Thomsen has been an Ames employee for nearly 14 years. She has headed the Records and Reports Branch during her entire Ames career. Mrs. Thomsen retired June 30 and has returned on a temporary appointment.

Speakers Bureau

Are there Eagle Scouts among our staff members who would be willing to occasionally serve as a NASA representative at Eagle Scout recognition ceremonies? The responsibility would involve a few minutes of talking about the values of Scouting, passing out autographed pictures from NASA astronauts, and a lot of enthusiasm!

Please contact the Speakers Bureau Manager, Barbara Busch, at extension 6364, if you are interested and available.

FUTURE PRESENTATIONS:

*John V. Foster, Director of Development, will deliver a presentation on planetary exploration, including the Pioneer-Jupiter missions, in a lecture series sponsored by the Lawrence Hall of Science, UC Berkeley. The lecture, open to the public, will be held September 6 at 7:30 p.m. at the Lawrence Hall of Science.

*John "Jack" Dyer, Chief of Mission Analysis, Pioneer Project, will discuss the Pioneer programs for Chapter #1 of the SIRs (Sons in Retirement) on September 12, in San Mateo.

*Dr. John Parker, Chief of Chemical Research Projects Office, will address the Packaging and Handling Engineers on September 13 in Palo Alto. The organization has expressed interest in some of the work being done at Ames related to materials handling.

*John Habermeyer, Safety Officer, will preside at an Eagle Scout recognition dinner at St. Andrew's Episcopal Church, Saratoga, when six new Eagle Scouts receive their awards, on September 10.

*On September 4 Garth Hull, Educational Programs Officer, will talk to the teachers in the Burlingame School District about the help NASA can provide in the teaching of aerospace. Did you know that up to 2000 young people from around the world write to Ames each month requesting information and pictures about NASA?

*Barbara Busch, Manager of the Speakers Bureau, will provide introductory remarks for the Milpitas Kiwanis' viewing on September 12 of the Earth Resources Technology Satellite film. This film, available through the PAO Audio-Visual Facility, describes how the ERTS program provides surveys and inventories of earth resources. On August 20 Miss Busch addressed the breakfast meeting of the Miracle mile Optimist Club in San Jose, on the work NASA is doing in ecology and pollution control.

A very versatile aerospace engineer



Editor's Note: This is the second of a series on some of the professions of women at Ames.

Betty Berkstresser is an aerospace engineer at Ames. She is also a jogger, a skier, a motorcycle rider, a sportscar enthusiast and an instrument rated pilot. She is truly a versatile person who has lots to offer the Systems Studies Division where she has been working for the past 2 years at Ames.

Betty is originally from Arizona, however, she attended the University of Houston in Texas to gain her formal education. She obtained a Bachelor of Science degree in Mathematics and began her career with the NASA Manned Spacecraft Center (Johnson Spacecraft Center now) in electrical power. She worked for MSC for 2 years in support of the Apollo missions.

Betty left MSC to work for 1 year with the Singer Link Division as a systems engineer. She helped on the Skylab simulator.

Betty then applied for a position at Ames to work on avionics systems in the Systems Studies Division. As an aerospace engineer, Betty looks at the electronics of future transport aviation and general aviation. The aircraft electronics she is concerned with includes commercial navigation, flight control and instrumentation. Betty determines the avionics cost in the areas of weight, reliability and maintainability.

Much interest is presently in future short and long haul aircraft transportation. However, NASA is becoming involved with general aviation which Betty finds exciting. "NASA is new in the general aviation avionics systems, yet sophisticated avionics is needed in the light aircraft field," she relates. "Some of the problems concerned with safety and economics can be solved with a minimum in cost. Light aircraft mix daily with transports and if a totally integrated avionics system could be developed, air travel would be safer."

Last week Betty returned to the University of Houston for 4 months to

complete a masters degree. She will be back at Ames and says, "It's been a pleasure working here and especially with the Systems Studies group."

Betty has found little if no discrimination as far as her being a woman engineer. And that makes work all the more pleasant!

Betty enjoys participating in sports rather than being a spectator. She belongs to the Ames Ski Club and can be classified an intermediate skier. She also belongs to a sportscar club and has participated in many rallies as a navigator. (She is currently negotiating the purchase of a Datsun 240 Z.)

As a pilot and a motorcycle rider, Betty has accomplished some interesting things. She belongs to the Santa Clara Valley Chapter of an international women pilots club called the Ninety-nines. She won their "Pilot of the Year" award last year and was given a large silver wine cooler with her name engraved on it. Betty introduced motorcycles to her family before coming to California. Her parents were very much against her riding dirt or street bikes because of the obvious dangers involved. Though Betty no longer owns a motorcycle, the present count of motorcycles at the "conservative" Berkstresser house is 5, including a Honda 500 and a Honda 750. Betty's head is still shaking in disbelief!

Though she is actively working toward obtaining a commercial pilot's license and eventually an airline transport rating, Betty plans to continue her career at Ames for many years to come. "A career as a commercial transport airlines pilot is unrealistic. The job market is saturated with pilots. The challenge of gaining the rating is an end in itself for me. My work at Ames has been a very pleasant, exciting and challenging experience and it promises to be so in the future."

Notice

The AFSC Liaison Office is sponsoring a No-Host Cocktail Party to provide interested Ames personnel with an opportunity to meet the new AFSC Liaison Officer, Lt. Col. Ted Andrada, and to greet Col. Dick Kahler who will be visiting Ames in his new capacity as Chief, Scientific and Technical Liaison Division, Director of Science and Technology, Andrews AFB, D.C.

The party will be held in the Ames Cafeteria on Thursday, September 6, from 4:30 p.m. to 6 p.m.

ACE Schedule

The following ACE television classes begin the week of September 24. Day and time of classes are shown in parenthesis.

Managerial Economics (MWF 7-7:50 p.m.)

Seminar in Systems & Procedures (TTh 7-8:15 p.m.)

Seminar in Financial Management (TTh 12-1:15 p.m.)

Principles of Financial Management (T 5-6:45 p.m.)

Planning & Operations Management (Th 5-6:45 p.m.)

Principles of Management/Organizational Behavior (M 5-6:45 p.m.)

Potential Methods in Petroleum Exploration (TTh 12-1 p.m.)

Nuclear Metallurgy (T 4:30-6:30 p.m.)

Microwave Tubes & Solid State Devices (Th 5-6:30 p.m.)

Materials & Processes for Macro Electronics (T 5:15-7 p.m.)

Laser Devices & Applications (M 5:30-7:15 p.m.)

The Technological Society (M 5-6:45 p.m.)

Information Management (MW 12-1 p.m.)

Advanced Systems Methods (TTh 12:15-1:05)

Elements of Supervision (MW 12:20-1 p.m.)

Math Review - Basic Algebra (MW 12-1 p.m.)

Principles of Effective Writing (Th 5:15-7)

Self Directed Career Development (T 5:30-7:30 p.m.)

Effective Reading (TTh 12-1 p.m.)

Personal Financial Development (MWF 12-1 p.m.)

Management By Objectives (5:15-7 p.m.)

Conducting Effective Interviews (W 5:15-7 p.m.)

For further information contact the Training and Special Programs Office.

Golf

Fifty-four members and guests played in the point-par tournament at the Aptos Seascapes golf course on August 11. The winners of the five flights were:

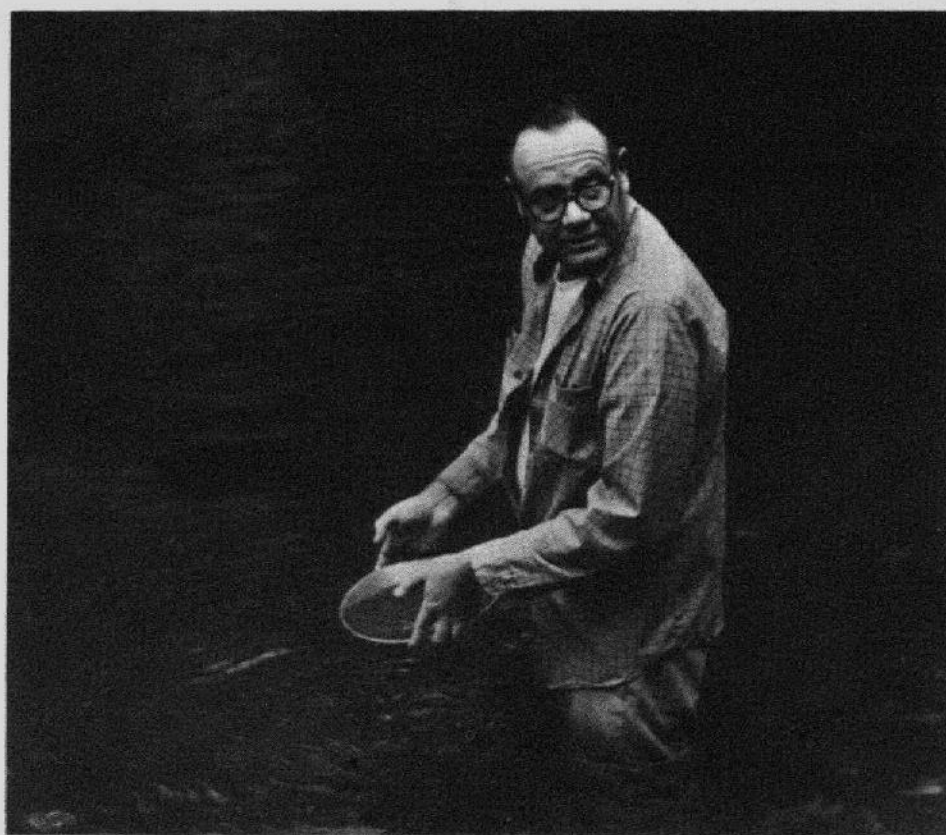
First flight: D. Banducci, 1st; G. Lazzeroni, 2nd; R. Ramos, 3rd; and O. Koontz, 4th.

Second Flight: J. Hawkins, 1st; T. Almojuella, 2nd; J. Wheatley, 3rd; and L. McCulley, 4th.

Third Flight: J. Bull, 1st; C. Eddy, 2nd; A. Astalfa, 3rd; and B. Eddy, 4th.

Fourth Flight: B. McCool, 1st; S. Tardio, 2nd; A. Lopez, 3rd; and B. Scott, 4th.

Fifth Flight: E. Levin, 1st; R.



NEW SOURCE . . . for Research and Program Management monies? Here we find Cleve E. Foss, Resources Program Specialist, panning for gold on the Feather River . . . while Pat Malone of Security (not pictured) stands guard.

Softball team wins undefeated

An Ames first! The RFE softball team finished out the season undefeated in the Ames Slowpitch Intramural League. This has never before happened in the history of Ames softball.

There are eight teams in the league. Each plays one night a week at Slater School in Mountain View. The season is from May 8 to August 16. Ames employees, contractors and relatives may participate.

The RFE team Manager is Bob Holmes. The team members and the positions they play are: John Leveen, pitcher (Code APT); Paul

Kutler, 1st base and catcher, STT; Bob Meneely, 1st base and outfield, RFR; Bill Schmidt, 2nd base, REE; Harry Cygielman, 3rd base, RFR; Frank Steinle, catcher and outfield, FAX; Ruben Martell, shortstop, contractor; Jim Meyers, short fielder, contractor; Doug White, center field, son of EEO Officer Willie White, Jr.; Arturo Sandoval, left field, Ruben's nephew; and Ed Smith, outfielder and catcher, contractor.

Want Ads

Transportation

FOR SALE:

69 Ford Sta. Wgn, 390 CID V-8, A/T, P/S, P/B, Air, Radial tires, AM/FM, good cond., \$975. after 5, 656-3889.

65 Volks, convert., good cond., \$825, eves., 259-0460.

70 Lincoln Cont., loaded includ. vinyl roof, leather interior, michelins 2850, call 253-6294.

72 Datsun 510, 4 sp. w/new tires & AM/FM radio, exc. cond., used 6 mos., 13,000 miles, \$1200 & assume 11 \$72 mo. pay., 255-1072.

68 Honda 305, 14,210 miles, needs repairs, \$100, 255-1072.

70 Honda 350 SL Special, perf. cond., ball bearing cam eng., Bal. to 1.2 yr. tuned, elec. starter, Yem, 322-6557.

70 Merc. Monterey, 2-dr., hardtop, bronz, vinyl, match. interior & roof, auto., radio, P/B, P/S, A/C, \$2000, 226 Grand Fir, Svyl.

66 Pontiac LeMans, AT, P/S, P/B, positraction, R, H, 2 dr. HT, vinyl top, \$550, 253-4106.

Housing

Going on vacation? Resp. 'house sitter' w/exc. ref. avail., 948-9399.

QUIET apt. or cottage wanted. Young friendly married couple - willing to do odd jobs. PLEASE! call Cindy, x 5579.

High school sr. guest worker wishes to rent a room in Menlo Park/PA area 'til Jan 74. call C.Smith, 5477.

Want to rent or buy house in Loma Vista-Terman School area, P. A., C. Gillespie, 2400 El Camino Real, Trailer No. 30, Mtn. View, 94040.

Miscellaneous

FOR SALE:

3 fluffy kittens, blue-gray, tiger & white, white w/decorative spots, 2 mos. old, free to kind homes. C. Hale, 493-5369.

Daystrum dinette set, 6 chairs & table, \$65, clean, 295-8293.

Mediterranean coffee table w/match. end tables, walnut, solid wood, like new, \$90, after 6, 253-2748.

Kroehler hide-a-bed-chenille velvet print, exc. cond., \$150, 253-2748.

New 8 track car stereo, w/quick-release mounting - 12VDC Model. Use w/home adapter, "Craib", 322-6557.

Heavy duty swing set \$14, jungle gym, \$13, call 738-2948.

Hoyer steel string (6) acoustic guitar w/case, \$60, call Dave at 255-2104.

Coldspot (Sears) refrig., exc. cond., metallic brn., rt. hand dr., \$50, 356-2082.

WANTED:

Small ten speed bicycle (I am 5'2") under \$50. Ellen, 408/338-3156.

LOST:

Will the person who borrowed the 9" Sony TV Monitor #37304 from Bldg. 239-A, Rm 104, please contact Phil Payne, ext. 5930.

Red Schwinn Breeze ladies bicycle, serral no. FH-007235, from Bldg. N-233. Call Comp. Fluid Dyn Branch ext. 5125.

Sportsmen Club

The Ames Sportsmen Club's Business Meeting will be Friday, September 7, at 11:45 a.m. in Building 213, room 261.

BLOODMOBILE SEPT 7 9-12 AUDITORIUM

Dowell, 2nd; E. Watson, 3rd; and F. DeMuth, 4th.

The next regular tournaments will be held on September 8 at Laguna Seca in Monterey and on September 29 at Santa Teresa in San Jose. Anyone interested in playing please contact Clark White, ext. 5438.